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Message 2:
From spo_patent@spo.eds.com Mon Apr 20 15:11:57 EDT 1998
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<mayasyst@shell1.uspto.gov>; Mon, 20 Apr 1998 15:11:56 -0400 (EDT)
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14:12:05 -0500
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id AA05185; Mon, 20 Apr 98 14:08:22 CDT
Received: from spo4.spo.eds.com by spo.spo.eds.com (4.1/SPO-2.6)
id AA28219; Mon, 20 Apr 98 14:08:21 CDT
Date: Mon, 20 Apr 98 14:08:19 CDT
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To: mayasyst@shell1.uspto.gov
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Subject: Re: 982559.sch
X-Mailer: SPO Mail
Mime-Version: 1.0
Message-Id: <19980420_140334_spo_28133>
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Status: RO

CUSTOMER REQUEST SUMMARY

Your request was:

>e003
>
>Word frequency list for document 982559
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>---search-id---
>982559, Guarriello J
>---search-id---
>
>---word freq---

> 1 able	2 about
> 1 abstract	1 accomplished
> 1 acrylic	1 addition
> 1 adhered	1 adhesive
>22 and	1 another
> 1 applications	3 are
> 1 arrived	1 backer
> 1 background	3 between
> 2 biaxially	3 board
> 1 both	1 brittle
> 1 building	1 buildings
> 1 built	4 can
> 3 cellulosic	1 central
> 1 clay	1 code
> 1 colloidal	1 composite
> 1 composition	1 compressed
> 2 comprising	3 construction
> 1 container	2 conventional

L

> 2 cubic	1 date
> 7 density	2 diaphragm
> 1 difficult	4 discloses
> 1 disposed	1 does
> 3 easy	1 embodiment
> 1 enough	1 exist
> 1 expensive	1 expres
> 3 exterior	3 fabric
> 1 fabricate	1 facings
> 1 fiberboard	4 fiberglass
> 1 fibrous	1 field
> 5 film	2 first
> 1 flexible	7 foam
> 2 foamed	2 foot
> 5 for	2 form
> 2 from	1 glass
> 2 government	1 governmental
> 1 half	3 has
> 2 have	1 havinc
> 5 having	1 haze
> 1 heavy	3 high
> 1 homes	3 housing
> 1 however	1 impact
> 1 impervious	1 impregnated
> 2 inexpensive	3 install
> 1 insulated	1 intermediate
> 1 intermodal	8 invention
> 1 inventive	1 kraft
>10 laminate	4 laminated
>20 layer	4 layers
> 3 lightweight	1 like
> 1 load	4 loading
> 7 low	8 made
> 2 manufactured	7 material
> 2 materials	1 mechanical
> 2 meet	3 meets
> 1 minimum	5 moisture
> 1 needs	2 net
> 2 non	1 nonwoven
> 1 not	1 object
> 1 objects	2 one
> 1 optionally	2 order
> 1 organic	1 orientated
> 2 oriented	1 other
> 1 outer	4 panel
> 4 paper	1 paperboard
> 5 patent	2 per
> 1 perforated	1 place
> 4 plastic	2 plywood
> 2 polymer	4 polymeric
> 1 poor	1 porous
> 1 pound	2 pounds
> 1 preferably	4 present
> 1 protective	1 provide
> 1 provided	1 providing
> 1 qil	1 regulations
> 5 reinforced	6 reinforcing
> 1 relates	4 requirements
> 1 resin	4 resistance
> 1 resistant	3 respect

```
> 1 rigid                          1 roofing
> 1 sandwich                       1 sandwiched
> 1 satisfy                        5 second
> 1 several                        1 sheathing
> 6 sheet                          1 shows
> 1 site                           1 stereoreticulate
> 1 strand                         1 strength
> 1 strengthen                     1 strong
> 1 structural                    11 structure
> 2 structures                     1 substantially
> 2 such                           1 summary
> 1 swellable                      1 synthetic
> 1 tend                          21 the
> 1 there                          5 thermoplastic
> 2 these                          1 third
> 4 this                           1 three
> 1 together                       1 trailer
> 4 transverse                     1 truck
> 1 two                            1 unit
> 1 use                            4 used
> 1 van                           18 wall
> 1 was                            1 water
> 1 wax                            1 weather
> 2 weathering                     1 weight
> 5 which                          6 wind
> 4 with                           1 woven
> 2 yet                            1 ywoo
> 1 zone
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Sales Order Summary:

Customer ID:	12310
Sales Transaction Nbr:	112523
Date Posted:	April 20, 1998
Product:	E003
Quantity:	50

E003 WORD FREQUENCY SEARCH REPORT

Classification Analysis:

1. 428/319.3 Total=12 ORs=0 XRs=12
   Class 428 STOCK MATERIAL OR MISCELLANEOUS ARTICLES
   Sub 221 WEB OR SHEET CONTAINING STRUCTURALLY DEFINED ELEMENT OR COMPONENT
   Sub 304.4 .Composite having voids in a component (e.g., porous, cellular, etc.)

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              Sub 318.4      ..With nonvoid component of specified
composition
              Sub 319.3      ...Synthetic resin or natural rubbers

   2.  428/319.7             Total=11   ORs=0    XRs=11
            Class 428        STOCK MATERIAL OR MISCELLANEOUS ARTICLES
              Sub 221        WEB OR SHEET CONTAINING STRUCTURALLY DEFINED
ELEMENT
                             OR COMPONENT
              Sub 304.4      .Composite having voids in a component (e.g.,
                              porous, cellular, etc.)
              Sub 318.4      ..With nonvoid component of specified
composition
              Sub 319.3      ...Synthetic resin or natural rubbers
              Sub 319.7      ....Linear or thermoplastic

   3.  428/316.6             Total=9    ORs=1    XRs=8
            Class 428        STOCK MATERIAL OR MISCELLANEOUS ARTICLES
              Sub 221        WEB OR SHEET CONTAINING STRUCTURALLY DEFINED
ELEMENT
                             OR COMPONENT
              Sub 304.4      .Composite having voids in a component (e.g.,
                              porous, cellular, etc.)
              Sub 316.6      ..Plural void-containing components

   4.  428/317.1             Total=6    ORs=1    XRs=5
            Class 428        STOCK MATERIAL OR MISCELLANEOUS ARTICLES
              Sub 221        WEB OR SHEET CONTAINING STRUCTURALLY DEFINED
ELEMENT
                             OR COMPONENT
              Sub 304.4      .Composite having voids in a component (e.g.,
                              porous, cellular, etc.)
              Sub 317.1      ..With component specified as adhesive or
bonding
                               agent

   5.  428/318.4             Total=5    ORs=0    XRs=5
            Class 428        STOCK MATERIAL OR MISCELLANEOUS ARTICLES
              Sub 221        WEB OR SHEET CONTAINING STRUCTURALLY DEFINED
ELEMENT
                             OR COMPONENT
              Sub 304.4      .Composite having voids in a component (e.g.,
                              porous, cellular, etc.)
              Sub 318.4      ..With nonvoid component of specified
composition

   6.  428/71                Total=5    ORs=2    XRs=3
            Class 428        STOCK MATERIAL OR MISCELLANEOUS ARTICLES
              Sub 68         SHEET INCLUDING COVER OR CASING
              Sub 71         .Foamed or expanded material encased

   7.  428/319.1             Total=4    ORs=0    XRs=4
            Class 428        STOCK MATERIAL OR MISCELLANEOUS ARTICLES
              Sub 221        WEB OR SHEET CONTAINING STRUCTURALLY DEFINED
ELEMENT
                             OR COMPONENT
              Sub 304.4      .Composite having voids in a component (e.g.,
                              porous, cellular, etc.)
              Sub 318.4      ..With nonvoid component of specified
composition
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            Sub 319.1      ...Inorganic

   8.  428/483             Total=4    ORs=0    XRs=4
           Class 428       STOCK MATERIAL OR MISCELLANEOUS ARTICLES
             Sub 411.1     COMPOSITE (NONSTRUCTURAL LAMINATE)
             Sub 480       .Of polyester (e.g., alkyd, etc.)
             Sub 483       ..Next to addition polymer from unsaturated
monomers

   9.  428/513             Total=4    ORs=0    XRs=4
           Class 428       STOCK MATERIAL OR MISCELLANEOUS ARTICLES
             Sub 411.1     COMPOSITE (NONSTRUCTURAL LAMINATE)
             Sub 500       .Of addition polymer from unsaturated
monomers
             Sub 507       ..Next to cellulosic
             Sub 511       ...Paper or wood
             Sub 512       ....Addition polymer of hydrocarbon(s) only
             Sub 513       .....Monoethylenically unsaturated

  10.  428/76              Total=4    ORs=0    XRs=4
           Class 428       STOCK MATERIAL OR MISCELLANEOUS ARTICLES
             Sub 68        SHEET INCLUDING COVER OR CASING
             Sub 76        .Complete cover or casing


Patent Report:

Ref   Patent Id  Issue/File   US Class (OR)  Title
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1     04578915   Apr  1 1986  52/309.12      Exterior wall
                 Mar 12 1984
  Status: certificate of correction has been issued; expired - failure
to
  pay second maintenance fee
Inventor: Schneller; Joseph W.
Assignee: National Gypsum Company
Abstract:
      A building exterior wall having an exterior surface of a
  concrete-stucco formed in place over panels which have a polystyrene
bead
  board core and thin concrete facings reinforced with a fiberglass
  open-weave mesh.

2     05451451   Sep 19 1995  442/247        Plastic based laminates
comprising
                 Dec  2 1992                 a fiber reinforced plastic
lofted
                                             core and outer parallel
sheets of
                                             thermoset resin impregnated
cotton
                                             liner paper
Inventor: Minnick; Michael G.
Assignee: General Electric Company
Abstract:
      A light weight, high strength laminate having improved fire
resistant
  characteristics and the method of making the same. A preferred
embodiment
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includes a low density fiber reinforced thermoplastic resin core between two parallel sheets of high density fiber reinforced thermoset resin. Another embodiment includes a core of polymeric foam laminated between two parallel inner fiber reinforced thermoplastic resin layers each of which face an outer layer of fiber reinforced thermoplastic resin.

3 05098778 Mar 24 1992 442/224 Plastic based laminates comprising
Apr 24 1990 outer fiber-reinforced thermoset sheets, lofted fiber-reinforced thermoplastic sheets and a foam core layer
Inventor: Minnick; Michael G.
Assignee: General Electric Company
Abstract:
A light weight, high strength laminate having improved fire resistant characteristics and the method of making the same. A preferred embodiment includes a low density fiber reinforced thermoplastic resin core between two parallel sheets of high density fiber reinforced thermoset resin. Another embodiment includes a core of polymeric foam laminated between two parallel inner fiber reinforced thermoplastic resin layers each of which face an outer layer of fiber reinforced thermoplastic resin.

4 04088805 May 9 1978 442/370 Reinforced thermoplastic foam
Apr 14 1975 sheet
Inventor: Wiegand; Donald E.
Assignee: Conwed Corporation
Abstract:
A reinforced low density thermoplastic foam sheet is disclosed. The sheet is a laminate comprising outer laminae of low density thermoplastic foam and a thermoplastic film having about the same tackifying temperature as the foam and a central layer comprising a reinforcing net or net-like structure.

5 04425396 Jan 10 1984 428/220 Insulative panel
Sep 28 1982
Inventor: Hartman; Richard E.
Assignee: The B. F. Goodrich Company
Abstract:
The panel (10) has a rigid foam layer (12) of synthetic organic polymeric foam, a protective weathering layer (14) of thermoplastic sheet material and a generally flexible backer layer (16) of stereoreticulate

material interposed between the foam and weathering layers. Interstices (30) of the backer layer (16) adjacent the foam layer (12) are filled with the resin of the foam layer (12) providing a physical bond and a protective substrate (32) for the foam layer. The weathering layer (14) may be adhered to the backer layer (34) by application of heat.

6 04529641 Jul 16 1985 428/198 Thermoformable laminate structure
Sep 7 1984
Status: expired - failure to pay second maintenance fee
Inventor: Holtrop; James S. et al.
Assignee: Monsanto Company
Abstract:
A twin-sheet thermoformable laminate structure is provided which has two layers of foamed thermoplastic material. A coating of a fabric impregnated with an acrylic resin having a softening temperature greater than 75 C. is applied to at least the outer surface of each layer of thermoplastic material.

7 05486391 Jan 23 1996 428/44 Portable fabric covered divider
Jul 5 1994 panels
Status: certificate of correction has been issued
Inventor: Tyner; Jeffrey D.
Abstract:
A panel (10) for use as a space divider (100) or to be attached to furniture (102) is described. The panel has a molded polystyrene beads (STYROFOAM) bead board core (12) encased in a plastic film layer (14) which stabilizes the panel and allows the panel to be used as a tack board. A decorative outer cover (18) is provided over the core and plastic layer to increase the aesthetic quality and versatility of the panel. Support plates (26) are provided along the edges (12C) of the core underneath the plastic layer to increase the structural strength of the panel and to enable attachment of the panels to each other or to other furniture. Attachment rails (20) are provided on the outside of the panel to protect the edges of the panel and enable a connector hinge (22) to be attached to the panel for connecting two panels together. The panels being used as a space divider can also have adjustment units (24) to change the height of the space dividers and to stabilize the divider especially on an uneven ground surface.

8 04963408 Oct 16 1990 428/71 Structural unitary composite
Jun 13 1988 laminate structure and method for making same
Inventor: Huegli; Ronald
Assignee: Mono-Lite Corporation

Abstract:
This invention relates to a unitary composite laminate structure, particularly as it relates to the manufacture of macro-scale unitary composite laminate structures. The laminate structure of this invention comprises a unitary composite having an inner core layer and an outer encapsulating layer co-adhered one to the other by a bonding material. The respective inner core and encapsulating layers are chemically fused together to produce the unitary structure. A high shear strength, load-bearing matrix is disposed between the respective inner core layer and the outer encapsulating layer. The matrix is oriented substantially entirely in the load bearing direction so that the unitary composite structure is capable of resisting delamination under conditions requiring high tensile and high shear strength.

9 04608104 Aug 26 1986 156/78 Method of making a thermoformable
Jul 13 1985 laminate structure
Inventor: Holtrop; James S. et al.
Assignee: Monsanto Company
Abstract:
A twin-sheet thermoformable laminate structure is provided which has two layers of foamed thermoplastic material. A coating of a fabric impregnated with an acrylic resin having a softening temperature greater than 75 C. is applied to at least the outer surface of each layer of thermoplastic material.

10 04937145 Jun 26 1990 428/412 Composite paper reinforced
Nov 21 1988 thermoplastic sheet
Inventor: McReynolds; Kent B.
Assignee: The Dow Chemical Company
Abstract:
A three layer structural sheet material having improved resistance to delamination comprising a core layer of a composite paper having outer surface layers of thermoplastic resin adhered to both major surfaces thereof.

11 04313993 Feb 2 1982 428/178 Laminated insulation
Apr 14 1980
Inventor: McGlory; Joseph J.
Abstract:
Laminated insulation is provided that is of increased efficiency without any great increase in the total thickness of insulation used which has an internal reflector which reflects back both hot and cold air from the internal reflector. The structure includes a plurality of plastic skins with air bubbles trapped therebetween which structure is laminated to other types of insulation and may have internal provisions to increase its strength.

12 05137787 Aug 11 1992 428/423.7 Composite plastic panel and method
Nov 17 1989 for producing same
Inventor: Shepherd; Charles E.
Assignee: C. E. Shepherd Company, Inc.
Abstract:
An improved composite plastic panel is disclosed, including a base layer comprising a thermoplastic or thermoset resin, which may be reinforced, and a protective surface layer comprising a polyurethane polymer having a glass transition temperature of at least 80 C. The protective layer forms a strong polar bond with the base layer. Thus, the composite plastic panel displays high water and weather resistance and has an increased useful lifespan.

13 04788088 Nov 29 1988 428/34.5 Apparatus and method of making a
Oct 2 1986 reinforced plastic laminate structure and products resulting therefrom
Status: expired - failure to pay first maintenance fee
Inventor: Kohl; John O.
Abstract:
The present invention provides a reinforced plastic laminate structure comprising an elongated reinforcing material that is encapsulated by an extruded plastic material that forms a continuous structure around the reinforcing material. The present invention contemplates methods of extruding a tube of plastic material while simultaneously introducing a reinforcing material within the interior of the tube. Thereafter, the tube is flattened so that the interior wall of the tube comes in contact with the reinforcing material to encapsulate the reinforcing material in a continuous structure. The reinforced plastic laminate sheet is made from an apparatus an extruding machine for extruding plastic with an annular die and opening for the extruding tubing. Attached to the extruding machine is a mandrel which feeds a reinforcing material into the center of the annular opening. Pressure rollers flatten the tubing after it exits from the annular die. The reinforcing plastic material may be formed into a variety of useful products where increased strength is required. The ease of manufacture provides a cost advantage over conventional construction materials.

14 04798756 Jan 17 1989 428/198 Laminate structure of interior
Jan 4 1988 finishing material
Status: expired - failure to pay first maintenance fee
Inventor: Fukushima; Shigeyoshi et al.
Assignee: Toyo Tire & Rubber Company Limited
Abstract:

The present invention provides laminate structures of interior finishing material having suitable air permeability and sound absorbing properties.

15 04476183 Oct 9 1984 442/372 Thermoformable laminate structure
Nov 21 1983 with improved acoustical absorption
Inventor: Holtrop; James S. et al.
Assignee: Monsanto Company
Abstract:
A thermoformable laminate structure with improved acoustical absorption is provided which has a first and a third layer of foamed thermoplastic material and a second layer, intermediate the first and third layers, which is a material having acoustical properties different from the properties of the material of the first and third layers. A portion of the surface area of each layer is adhesively bonded to the adjacent layer. A resin impregnated fabric is bonded to the outer surfaces of the first and third layers.

16 05733824 Mar 31 1998 442/153 Hand-tearable moisture barrier
Jun 7 1995 laminate
Inventor: Brunka; Rosalene et al.
Assignee: Bay Mills LTD
Abstract:
Hand-tearable barrier laminates are provided which include a reinforcing layer having a first tensile strength laminated to flexible cellulosic web comprising open porosity and a second tensile strength which is less than the first tensile strength. The web is treated with a water-resistant polymeric resin for providing liquid water resistance to the web while permitting water vapor to pass through it. Inexpensive web materials can be substituted for polymer foam and microperforated plastic films currently employed by the housing industry.

17 04082882 Apr 4 1978 442/286 Fiberglass reinforced plywood
Aug 13 1975 structural sandwich with acrylic facing on one or both sides thereof
Inventor: Weinstein; Hyman et al.
Assignee: Delta Truck Body Company, Inc.
Abstract:
A structural sandwich for use as a truck, trailer, van or intermodal container wall and method of making the same. The sandwich comprises a fiberglass reinforced plywood plastic unit having one or both facings which are in the form of a sheet or film of a high-impact, weather-resistant, low-haze, non-brittle, substantially non-porous acrylic composition, the unit being made into an integrated sandwich of 20

foot
lengths or more by an efficient vacuum molding method.

18 04489126 Dec 18 1984 442/226 Thermoformable laminate structure
Nov 21 1983
Inventor: Holtrop; James S. et al.
Assignee: Monsanto Company
Abstract:
A moisture-resistant, moldable, thermoformable laminate structure and method of making same is disclosed. The structure comprises a layer of a foamed thermoplastic material having first and second surfaces and a coating of acrylic resin, having a softening temperature greater than approximately 130 C., impregnated fabric bonded to said first and second surfaces.

19 04349597 Sep 14 1982 428/95 Production of synthetic leather
Jul 7 1980
Inventor: Fine; Jerome et al.
Assignee: Cleveland Plastics of Tennessee, Inc.
Abstract:
A composite synthetic leather sheet material and method of manufacture thereof is disclosed. The composite sheet material comprises outer thermoplastic polymeric layers bonded to opposite faces of a reinforcing textile fabric, preferably a porous woven fabric of high strength material, by an intermediate polymeric layer which fills the interstices of the fabric and has opposite surfaces disposed adjacent the fabric surfaces to engage and firmly secure the outer thermoplastic polymeric layers in the composite sheet. One of the outer thermoplastic layers is foamed to a relatively high degree and the outer surface of the foam is mechanically abraded or buffed to provide a suede-like leather appearance thereto. The other outer thermoplastic layer may be foamed and provided with an embossed leather-like surface appearance. The sheet material product is reversible in use, completely heat-sealable, flow-moldable, and printable on both sides for subsequent manufacture of synthetic leather good articles.
The polymeric layers of the composite sheet are preferably applied to the reinforcing fabric in plastisol form, and all of the layers may be foamed in varying degrees, if desired. The sheet material is produced by applying a first thermoplastic polymeric layer to an embossed release paper, heating the first layer to a tacky state, applying a reinforcing fabric to the surface of the tacky layer, and impregnating the fabric with a second polymeric composition to fill the interstices and contact the

lower polymeric layer on the release paper. The sheet is heated to gel the two polymeric layers and a third foamed or foamable thermoplastic polymeric layer is applied to the exposed surface of the sheet. The resultant composite is heated to foam, cure and fusion bond the polymeric layers, and the unembossed foamed polymeric layer is thereafter mechanically abraded to impart a suede-like leather appearance thereto.

20 04842951 Jun 27 1989 428/516 Thermoforming resin laminate sheet
Dec 24 1987
Inventor: Yamada; Toyokazu et al.
Assignee: Idemitsu Petrochemical Company Limited
Abstract:
A resin laminate is disclosed, which comprises a gas permeation-resistant resin layer having laminated on each side thereof a polyolefin based resin layer, wherein said polyolefin based resin layer contains an inorganic filler in an amount of 30 to 80% by weight based on the total weight of the resin composition. The resin laminate may be provided with a thermoplastic resin layer containing no inorganic filler on the outersurface thereof. The resin laminate has a minimized oxygen gas permeability and has a low calorific value and is useful as a packaging material.

21 04879152 Nov 7 1989 428/73 Composite panel structure
Feb 15 1989
Status: expired - failure to pay second maintenance fee
Inventor: Green; Patrick H.
Abstract:
The invention includes a composite panel and a method for manufacturing it. The panel has a smooth polyester plastic face, a first fiberglass reinforced polyester layer adjacent to the smooth face, a honeycomb structure core of polypropylene plastic with one face adhered to the first polyester layer, and a secondd fiberglass reinforced polyester layer adhered to the second face of the core. The panel is manufactured by assembling the components in a series of steps and curing the polyester layers in sequence on a flat horizontal mold.

22 03663353 May 16 1972 428/332 PLASTIC LAMINATE STRUCTURE CONSISTING OF A PLASTIC FILM
Jun 1 1970 LAMINATED TO A SUBSTRATE WITH A
RESIN IMPREGNATED PAPER INTERMEDIATE LAYER
Inventor: Long; Jack D. et al.
Assignee: Fitchburg Paper Company

Abstract:
Laminated structures are disclosed wherein a reverse printed film of plastic such as polyvinyl chloride, Tedlar or polytetrafluoroethylene is joined to a substrate by means of a thermoset resin impregnated paper layer.

23 [redacted] Aug 29 1972 52/742.13 METHOD FOR BUILDING CONSTRUCTION
Feb 19 1970
Inventor: Von Bose; Robert J.
Abstract:
A method for building a habitable structure having all wall sections thereof constructed from two wall panels and a foamed core. The wall panels are erected on a foundation structure at the building site. Various fixtures including window frames, door frames, electrical junction or outlet boxes, water and sewer piping are installed between the wall panels and project into suitable openings in the wall panels. Construction forms are used to backup the wall panels. The construction form has a sheet of magnetizable material contacting the outer surface of the wall panel. The various fixtures are magnetically attached to the wall panels to hold the fixtures in place during the remainder of the construction process. After two wall panels, the various fixtures utilized therewith and two backup forms are erected. The space between the wall panels not occupied by fixtures is filled with a foamed in situ, synthetic, polymeric composition. After the foamed composition has partially solidified, the forms are removed leaving a completed wall section erected on the foundation structure. The foamed composition bonds the two wall panels together in a predetermined spaced relationship, bonds the fixtures in place and also bonds the wall section to the foundation structure. This type of wall panel can be installed either on the interior of a building structure or can be installed at the periphery of the foundation structure by using an exterior wall panel on one side of the wall section and by using an interior wall panel on the inward side of the wall section. A roof panel can be installed over the wall section by foaming the polymeric composition to within, for example, six inches of the top of the wall panels, placing the roof panel over the wall section and foaming a polymeric composition in the remaining six or so inches to bond the roof panel to the wall section.

24 [redacted] May 22 1990 428/91 Assembly of several layers having
Apr 26 1988 one or more reinforcing layers and

fiber reinforced plastic article
produced therefrom

Inventor: Asensio; Javier et al.
Assignee: The Dow Chemical Company
Abstract:
A fiber reinforced plastic article which has a resinous matrix and a reinforcing material is provided with a smooth surface which can be easily painted by using a knitted or woven textile fabric having at least one tufted, fibrous, velvety, napped, brushed or pile surface as an external layer.

25 04361613 Nov 30 1982 428/119 Composite construction materials
Sep 21 1981 with improved fire resistance
Status: expired - failure to pay first maintenance fee
Inventor: Bogner; Ben R. et al.
Assignee: The Quaker Oats Company
Abstract:
Composite building structures, such as foam core panels or the like. The panels comprise one or more foam core sections, preferably cores which include fire retardant additives. The exterior sheathing for the foam cores is a multiple laminate containing an inorganic filler material, such as glass fibers or ground carbonaceous or siliceous material; the filler is bound in place by a fire retardant, furan-based resin. The method includes forming a plurality of layers by depositing the resin and the filler alternately in a mold, thereafter placing boards or like core structures thereover and covering the exposed surfaces by multi-ply laminates of the fire retardant furan-based resin containing the glass fiber, carbonaceous or siliceous fillers. The method is also applicable to cover existing foam core installations used in building structures.

26 05426908 Jun 27 1995 52/783.11 Method of construction using
Feb 22 1994 corrugated material
Inventor: Shayman; Harry I.
Abstract:
A pre-fabricated building section made up of gypsum board laminated to either a double or triple layer of a length of U- or C-shaped corrugated cardboard in approximately two foot widths. The completed sections are then used in homes or building constructions. Within the shaped cardboard is a sheet of fireproof foam. Metal stays bolted in place at the ends and corners of corrugated cardboard, used to attach adjacent sections, assist in the rigidity of the resulting section.

27 04435344 Mar 6 1984 264/45.1 Method for producing a

heat-
Dec 29 1981 insulating paper container
from a
paper coated or laminated
with a
thermoplastic synthetic
resin film
Inventor: Iioka; Akira
Assignee: Nihon Dixie Company, Limited
Abstract:
A heat-insulating paper container having good heat-insulating property which can be prepared easily at low cost is disclosed. The paper container is prepared by heating a paper container comprising a body member and a bottom member, wherein one surface of at least the container body member is coated or laminated with a thermoplastic synthetic resin film and the other surface of the body member is coated or laminated with the same or different thermoplastic synthetic resin film or an aluminum foil, to thereby foam the thermoplastic synthetic resin film and form a heat-insulating layer on at least one surface of the container.

28 05700570 Dec 23 1997 428/342 Composite construction material
Feb 14 1996
Inventor: Fahmy; Mohamed A.
Assignee: K2, Inc.
Abstract:
A composite construction material comprises consecutive laminae of a kraft linerboard optionally coated with a sealant, a layer of polymer, a plurality of superposed layers of water-resistant paperboard adhered together, a second layer of polymer, and a second layer of kraft linerboard.

29 04557970 Dec 10 1985 428/316.6 Laminate structure with improved
Sep 4 1984 acoustical absorption
Status: expired - failure to pay second maintenance fee
Inventor: Holtrop; James S. et al.
Assignee: Monsanto Company
Abstract:
A laminate structure with improved acoustical absorption is provided which has a first and a third layer of foamed thermoplastic material and a second layer, intermediate the first and third layers, which is a material having acoustical properties different from the properties of the material of the first and third layers. A portion of the surface area of each layer is adhesively bonded to the adjacent layer. A sheet of paper or fabric is adhesively bonded to at least the outer surfaces of the first and

third
layers.

30 05462794 Oct 31 1995 428/317.1 Foamed core-reclaim multi layer
Jul 30 1993 sheet having improved resistance
to barrier film delamination
Inventor: Lindemann; David C. et al.
Assignee: Amoco Corporation
Abstract:
Disclosed is a multi-layer sheet in a which a foamed thermpolastic core layer is extrusion coated with a multi-resin reclaim-containing layer, and an EVOH or acrylonitrile barrier layer is laminated to the multi-resin layer. The multi-resin layer is formulated to contain at least about 5 weight percent, and preferably about 8 to about 16 weight percent, based on the weight of the layer, of an adhesive resin to reduce the tendency of the barrier layer to delaminate from the multi-resin layer over time. The preferred adhesive is EMA.

31 04803105 Feb 7 1989 428/41.1 Reinforcing sheet for the
Feb 13 1987 reinforcement of panel and method
of reinforcing panel
Inventor: Kretow; Robert P. et al.
Assignee: Essex Specialty Products, Inc.
Abstract:
A reinforcing sheet adaptable to the reinforcement of a panel formed of metal, plastic or sheet molding compound, which reinforcing sheet contains a moisture impermeable barrier embedded in a thermosetting adhesive layer and a reinforcement adhered to the surface of the adhesive layer opposite the surface to be applied to the panel to be reinforced.
The reinforcing sheet with improved resistance to the adverse effects of moisture is advantageously used to reinforce cold rolled steel, such as an automobile panel.

32 04828910 May 9 1989 442/391 Sound absorbing laminate
Dec 16 1987
Inventor: Haussling; Reinhold
Abstract:
There are provided laminate structures comprising a reinforcing fibrous mat integrally bonded to a resilient fibrous batt. The mat is preferentially a porous mat of resin-bonded chopped glass fiber. The batt is preferentially a porous bat of natural or synthetic fibers.
Preferentially, the laminate comprises a core of resilient fibrous batt sandwiched between two facing sheets of reinforcing fibrous mat, with a decorative cover layer being laminated to the exterior surface of one reinforcing fibrous mat, the whole being bonded together by a thermoset

binder into a unitary structure.

33 05068001 Nov 26 1991 156/222 Method of making a sound absorbing
Jan 13 1989 laminate
Status: certificate of correction has been issued
Inventor: Haussling; Reinhold
Abstract:
There are provided laminate structures comprising a reinforcing fibrous mat integrally bonded to a resilient fibrous batt. The mat is preferentially a porous mat of resin-bonded chopped glass fiber. The batt is preferentially a porous batt of natural or synthetic fibers. Preferentially, the laminate comprises a core of resilient fibrous batt sandwiched between two facing sheets of reinforcing fibrous mat, with a decorative cover layer being laminated to the exterior surface of one reinforcing fibrous mat, the whole being bonded together by a thermoset binder into a unitary structure.

34 04852316 Aug 1 1989 52/235 Exterior wall panel
Nov 13 1987
Status: expired - failure to pay first maintenance fee
Inventor: Webb; William
Assignee: Composite Panel Manufacturing
Abstract:
A building curtain wall panel system is disclosed in which a plurality of mechanically fastened and bonded layers are provided to create a fire resistant, light weight and insulated panel which is easily installed and yet resists impact stress. The panel includes bonded layers attached to a steel frame. The strength and fire resistant properties are enhanced by a medium density calcium silicate composite panel. The exterior architectural design features may be varied by composite coatings including a variety of materials including acrylic resins, fibers, vicron, fungicide, coloring agents, cement and water.

35 05679432 Oct 21 1997 428/71 Multi-layer laminate structure
May 9 1994
Inventor: Holmquest; John H. et al.
Assignee: Benchmark Foam, Inc.
Abstract:
The present invention relates to a multi-layer laminate structure. The multi-layer laminate structure includes a foam core element and a fiber-reinforced plastic matrix. The foam core element includes at least an outermost portion that is formed from a closed cell expanded foam, wherein the closed cell expanded foam is expanded polyethylene-polystyrene copolymer foam. The outermost portion of the foam core element is constructed from a material that is not attacked or degraded by the

material used in the fiber-reinforced plastic matrix. The fiber-reinforced
plastic matrix is formed over the outermost portion of the core element.

36 05425207 Jun 20 1995 52/79.9 Method of constructing buildings
Feb 22 1994 and other structures using corrugated material
Inventor: Shayman; Harry I.
Abstract:
Pre-fabricated building sections made up of gypsum board laminated to
either a double or triple layer of a length of U- or C-shaped corrugated
cardboard in approximately two foot widths are fastened together by angled
metal stays. The completed sections are used in homes or building
constructions. Within the shaped cardboard is a sheet of fireproof foam.
Metal stays bolted in place at the ends and corners of corrugated
cardboard, used to attach adjacent sections, assist in the rigidity of the
resulting building structure.

37 04661414 Apr 28 1987 428/461 Multi-layer flexible packaging
Mar 20 1985 material
Status: expired - failure to pay second maintenance fee
Inventor: Kowalski; Gregg D.
Assignee: American Can Company
Abstract:
A flexible, laminated packaging material comprising:
(a) an external layer of paper;
(b) a first internal layer of polyethylene affixed to the paper layer;
(c) a second internal layer of metallic foil affixed to the polyethylene layer; and
(d) an external, three component, co-extruded layer affixed to the metallic layer which includes a middle co-extrudate of high density polyethylene between outer co-extrudates formed from a blend of an ionomer
resin with ethyl methacylate.

38 05609293 Mar 11 1997 229/3.5 R Lined and coated corrugated
Jan 19 1995 paperboard package systems for
modified atmosphere packaging of
fresh fruits and vegetables
Inventor: Wu; Chiu H. et al.
Assignee: The University of British Columbia
Abstract:
PCT No. PCT/CA93/00168 Sec. 371 Date Jan. 19, 1995 Sec. 102(e) Date
Jan. 19, 1995 PCT Filed Apr. 20, 1993 PCT Pub. No. WO93/22138 PCT Pub. Date Nov. 11, 1993
This invention relates to the design, construction and use of lined or
coated corrugated paperboard package systems (e.g. boxes, cartons) for

prolonging the storage life of fresh fruits and vegetables under modified atmospheres (MA) in the headspaces of the closed package systems. The plastic-paperboard construction comprises a first layer of polymeric film, a second layer of kraft paper adjacent the first layer, a kraft paper corrugated flute adjacent the second layer and a fourth layer of kraft paper adjacent the flute.

39 04935089 Jun 19 1990 156/272.6 Method of making a thermoformable
Apr 7 1989 barrier sheet
Inventor: Schirmer; Henry G.
Assignee: W. R. Grace & Co.-Conn.
Abstract:
Thermoformable barrier sheet includes a barrier film having low oxygen transmission, and a thermoformable plastic, especially a foamed or unfoamed polystyrene sheet bonded thereto. Bonding can be accomplished by corona bonding or by thermal bonding.

40 04844944 Jul 4 1989 428/35.7 Lightweight, durable plumbing
Dec 18 1987 fixture fabricated from a delamination-resistant multilayer
polymeric composite
Inventor: Graefe; Peter U. et al.
Assignee: American Standard, Inc.
Abstract:
A light weight, durable plumbing fixture, e.g., a bathtub, sink, shower receptor, etc., is fabricated from a multilayer polymer composite structure of high impact strength and delamination resistance. The composite possesses a relatively thin polymeric cosmetic, or finish, layer, e.g., of acrylic resin, chemically bonded to a relatively thick, reinforced, cross-linked, isocyanate-modified thermosetting polyester or polyether dense foam resin substrate layer.

41 04847148 Jul 11 1989 428/332 Thermoformable barrier sheet
Oct 30 1987
Status: expired - failure to pay first maintenance fee
Inventor: Schirmer; Henry G.
Assignee: W. R. Grace & Co.
Abstract:
Thermoformable barrier sheet includes a barrier film having low oxygen transmission, and a thermoformable plastic, especially a foamed or unfoamed polystyrene sheet bonded thereto. Bonding can be accomplished by corona bonding or by thermal bonding.

42 04242406 Dec 30 1980 442/373 Fiber reinforced composite
Apr 30 1979 structural laminate composed of
two layers tied to one

another by
embedded fibers bridging
both
layers
Inventor: El Bouhnini; Larbi et al.
Assignee: PPG Industries, Inc. et al.
Abstract:
This invention relates to a structural laminate having a plastic surface finish coat laminated to a structural base which has exceptional bond strength between the structural base and the plastic layer with which it interfaces. The structural base comprises a glass reinforced gypsum layer. The plastic laminate portion comprises a plastic surface finish coat, preferably a polyester gel coat or an acrylic resin, bonded to a reinforcing layer of curable polyester or epoxy resin reinforced with glass fibers. The reinforcing layer is adhered to a bonding layer which comprises glass fibers protruding from the reinforcing layer and coated with a limited amount of organic resin such as polyester or epoxy resin.
The glass reinforced gypsum layer is applied to the protruding fibers of the bonding layer to form an interface having a bond strength of at least about 150 psi as determined by ASTM C297-68.

43 04463043 Jul 31 1984 428/68 Building panel
Aug 26 1981
Status: expired - failure to pay third maintenance fee
Inventor: Reeves; John F. et al.
Assignee: Sprinkmann Sons Corporation
Abstract:
A building panel (10, 20, 30, 31, 32, 60 and 70) having spaced first and second outer layers (11, 12), a covering layer (15) bonded to an exterior surface of at least one of the outer layers, and a connecting member (13, 14, 64, 71) extending across the space between the first and second layers and joined to both layers. The first and second outer layers are made of furan resin reinforced with glass fibers.

44 04372900 Feb 8 1983 264/45.3 Method of forming reinforced foam
Nov 13 1980 structure
Inventor: Doerfling; Ralph G.
Assignee: Detroit Gasket & Mfg. Co.
Abstract:
A method of forming a reinforced foam structure or laminate wherein a low density, fast reacting liquid foamable resin is sprayed under pressure into a low density fiberglass mat to penetrate and wet the fibers. The foam then expands within the fiberglass mat, forming a low density foam sheet having fiberglass distributed substantially continuously therethrough. A support or cover sheet is preferably laminated to the foam-fiberglass sheet and the laminate is formed under heat and

pressure
in a die into a contoured shape, simultaneously curing the resin foam.

45 05735092 Apr 7 1998 52/309.9 Composite roofing members having
Sep 23 1996 improved dimensional stability and
related methods
Inventor: Clayton; Thomas M. et al.
Assignee: Bridgestone/Firestone, Inc.
Abstract:
A composite recovery board (10) includes a foam core (11) selected from the group consisting of polyisocyanurate and polyurethane materials and mixtures thereof; a facer (15), applied to one major surface (13) of the foam core and formed from a sheet selected from the group consisting of reinforced polymer material and reinforced cellulosic material, wherein the polymer material and cellulosic material are reinforced with a material selected from the group consisting of glass strands, glass fibers, and mixtures thereof and, gypsum board (14), applied to the opposite major surface (12) of the foam core. A method of reroofing a roof includes applying composite recovery boards of the present invention to a roof deck; and, applying a weather protective layer over the recovery boards. A continuous method of making a composite recovery board includes feeding gypsum board (14) into a laminator assembly (21); depositing a foamable polymer liquid (36) onto the gypsum board; feeding a facer material (15) into the laminator assembly above the foamable polymer liquid; allowing the polymer liquid to rise between the gypsum board and facer material forming polymer foam of a pre-determined thickness; curing the polymer foam under heat (44) to create the composite board; and cutting the composite board to desired lengths.

46 04664982 May 12 1987 428/447 Multi-layer composite structure
May 1 1985
Status: certificate of correction has been issued
Inventor: Genovese; John S. et al.
Assignee: American Standard Inc.
Abstract:
A composite structure, e.g., a plastic-backed enamel steel product having high impact and thermal shock resistance is disclosed. The composite structure is formed having bonded thereto, a finished layer on one side thereof, and on the other side a layer of reinforced plastic to form a laminated structure. The plastic layer has a thickness of at least in., and a density of between about 20 lbs. per cu.ft. and about 125 lbs per cu.ft. The finished layer is resistant to delamination when subjected to relatively high impact applied directly to the finished and/or

plastic
layer surface and to delamination when the composite structure is subjected to a sudden temperature change of about 180 F.

47 05128196 Jul 7 1992 428/213 Foamed core-reclaim multi-layer
Mar 16 1990 sheet and process for production
thereof
Inventor: Luetkens, Jr.; Melvin L. et al.
Assignee: Amoco Corporation
Abstract:
The invention comprises a multi-layer thermoplastic foam sheet comprising a thermoplastic foam layer adjacent to at least one multi-resin layer, preferably comprising a reclaim material mixture recycled from the sheet manufacturing process, and which comprises a thermoplastic barrier resin. In a preferred embodiment, the multi-layer sheet of the invention comprises a four major layer sheet comprising a barrier film layer which comprises a thermoplastic oxygen barrier resin; an inner mutli-resin reclaim layer comprising the oxygen barrier resin used in the barrier film layer; a foam core layer adjacent to the inner multi-resin reclaim layer; and an outer multi-resin reclaim layer, also comprising the oxygen barrier resin, as the other outer layer of the multi-layer sheet. In a more preferred embodiment, impact polystyrene is added to the reclaim layers and polystyrene is used in the foam core to produce multi-layer sheets having an impact-resisting outer layer and a lightweight inner foam core layer, respectively.

48 04495021 Jan 22 1985 156/425 Apparatus for producing fiber
Sep 26 1983 reinforced plastic sheet structures
Status: expired - failure to pay first maintenance fee
Inventor: Goldsworthy; William B.
Assignee: Goldsworthy Engineering, Inc.
Abstract:
Apparatus for producing reinforced plastic sheets and reinforced plastic sheet laminate structures on a high speed continuous basis and which sheets and laminate structures may have widths ranging from relatively narrow to very wide. The apparatus comprises a means for bringing one or more layers of resin impregnated, fiber-containing, reinforced plastic composite material into contact with each other or into contact with surfaces of one or more endwise abutted relatively flat panels.

49 04357384 Nov 2 1982 428/215 Composite structures, new
Aug 5 1981 adhesive, and cement composition
Status: expired - failure to pay third maintenance fee

Inventor: Jasperson; F. Bon
Assignee: Northwood Mills, Ltd.
Abstract:
A composite structure is disclosed, wherein the structure includes an interior substrate or facing, a layer of rigid insulation, and an exterior facing or cementitious layer, with an adhesive adhering such insulation at least to the interior substrate or facing, with an exterior waterproofing layer of the dried residue of a latex polymer-coating composition being adhered to the exterior of the composite structure or panel. The waterproofing coating layer contains a film-forming polymer which is an acrylic polymer or a vinyl polymer, and has a Mar Elasticity Value of at least 1.

The composite structure or insulating structural panel of the present invention may be used as the wall or the roof of a building.

50 04810568 Mar 7 1989 442/36 Reinforced fabric laminate and
Jun 11 1987 method for making same
Status: certificate of correction has been issued
Inventor: Buyofsky; Conrad C. et al.
Assignee: Chicopee
Abstract:
A method of making a low cost, nonwoven reinforced fabric laminate comprising two layers of lightly entangled fibers having binder at the jet surface thereof, and having a reinforcing layer therebetween, comprising superimposing the two fibrous layers and the scrim with the non-binder side of the fibrous layers next to the scrim and securing the reinforcing layer to each of the fibrous layers.

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=> d l1 cit ab 1-5

1. 5,763,043, Jun. 9, 1998, Open grid fabric for reinforcing wall systems, wall segment product and methods of making same; John F. Porter, et al., 428/109; 52/309.16, 309.17, DIG.7; 428/114, 137, 138; 442/3, 20 [IMAGE AVAILABLE]

US PAT NO: 5,763,043 [IMAGE AVAILABLE] L1: 1 of 5

ABSTRACT:
An open grid fabric for reinforcing wall systems and a method of making same. First and second sets of substantially parallel, selected rovings are combined using certain knits, leno weaves, or adhesive methods. The rovings are direct-sized with at least a silane sizing and preferably have a linear density between 100 and 2000 grams per thousand meters and are arranged at an average of 3 to 10 ends per inch. A polymeric coating is applied to the fabric at a level of 10 to 150 parts dry weight of resin to 100 parts by weight of the fabric while assuring that the open grid remains open. A method for reinforcing a wall system and a wall segment product utilizing the novel open grid fabric of the present invention are also disclosed.

2. 5,552,207, Sep. 3, 1996, Open grid fabric for reinforcing wall systems, wall segment product and methods of making same; John F. Porter, et al., 428/109; 52/309.16, 309.7, DIG.7; 428/114, 137, 138; 442/3 [IMAGE AVAILABLE]

US PAT NO: 5,552,207 [IMAGE AVAILABLE] L1: 2 of 5

ABSTRACT:
An open grid fabric for reinforcing wall systems and a method of making same. First and second sets of substantially parallel, selected rovings are combined using certain knits, leno weaves, or adhesive methods. The rovings are direct-sized with at least a silane sizing and preferably have a linear density between 100 and 2000 grams per thousand meters and are arranged at an average of 3 to 10 ends per inch. A polymeric coating is applied to the fabric at a level of 10 to 150 parts dry weight of resin to 100 parts by weight of the fabric while assuring that the open grid remains open. A method for reinforcing a wall system and a wall segment product utilizing the novel open grid fabric of the present invention are also disclosed.

3. 5,172,532, Dec. 22, 1992, Prefabricated polymer building wall panels; James H. Gibbar, Jr., 52/309.12 [IMAGE AVAILABLE]

US PAT NO: 5,172,532 [IMAGE AVAILABLE] L1: 3 of 5

ABSTRACT:
A prefabricated polymer building wall panel, generally formed of polystyrene, as a slab, is sculpted to form grooves therein, by hot wire cutting, or by other cutting means, and into which reinforcement rods may be located, in preparation for the pouring or pumping of concrete therein, to form a concrete built skeletal structure for reinforcing the panel, as they are erected into a building wall structure. Vermiculite, lightweight concrete, or polystyrene sheet is applied over the open grooved side of the polystyrene sheet, either before or after concrete is poured therein, to provide either an outer or inner surface for the building wall, when erected, and slots are provided along each side or upper or lower edge of each panel, so that the panels can be assembled, either side by side, or one above the other, during their erection. The grooves cut into the polystyrene panel may be design shaped, as in the configuration of an I-beam, in cross section, for enhanced reinforcement

and to strengthen the panels for fabrication into a building wall.

4. 5,038,541, Aug. 13, 1991, Polymer building wall form construction; James H. Gibbar, Jr., 52/295, 309.12, 426, 442 [IMAGE AVAILABLE]

US PAT NO: 5,038,541 [IMAGE AVAILABLE] L1: 4 of 5

ABSTRACT:
A polymer building or other structured wall form construction wherein forms prefabricated of polymer, such as polystyrene, are assembled together, spaced apart by integrally connecting polymer or blocks, spacers, or spool means, erected upon a foundation footing, or other base structure, through their insertion of L-shaped ties, with the wall forms being erected to the height desired for the subject building or other structure, whether it be a commercial, industrial, or residential building, through the application of tee-shaped ties therebetween, Reinforcement is located in the spacing between the blocks or spacers, of the wall forms, and concrete may be poured therein, either at the job site, where the building is being constructed, or at the manufacturing plant, where the wall forms are formed, in order to provide a latticework of reinforced concrete for the composite wall. The internal surface of each of the inner and outer liners forming the wall form are shaped, into the configuration of an I-beam, in order that any concrete poured therein will undertake the cross-sectional configuration of an I-beam, to add further reinforcement to the fabricated building, once a wall is completed. A top beam form of plate cap is arranged upon the upper edge of the formed wall, with the concrete being poured simultaneously with the construction of the assembled wall. Bracing held together by ties and locked into position by fasteners secure the wall forms together, in their erected disposition, in preparation for the pouring of the latticework of concrete reinforced composite wall.

5. 4,924,641, May 15, 1990, Polymer building wall form construction; James H. Gibbar, Jr., 52/204.1, 251, 258, 262, 275, 295, 300, 309.12 [IMAGE AVAILABLE]

US PAT NO: 4,924,641 [IMAGE AVAILABLE] L1: 5 of 5

ABSTRACT:
A polymer building or other structured wall form construction wherein forms prefabricated of polymer, such as polystyrene, are assembled together, spaced apart by integrally connecting polymer or blocks or spacers, erected upon a foundation footing, or other base structure, through their insertion upon L-shaped ties, with the wall forms being erected to the desired height for the subject building or other structure, through the application of tee-shaped ties therebetween. Reinforcement is located in the spacing between the blocks of the wall forms, and concrete may be poured therein, to provide a latticework of reinforced concrete for the composite wall. A top beam form of plate cap is arranged upon the upper edge of the formed wall, with a concrete beam being poured simultaneously with the construction of the assembled wall. Bracing held together by ties and locked into position by fasteners secure the wall forms together, in their erected disposition, in preparation for the pouring of the latticework of concrete reinforced composite wall.

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L2           0 5451451
               ((5451451 OR 5,451,451)/BI)
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             0 5098778/BI
             1 5,098,778/BI
L3           1 5098778
               ((5098778 OR 5,098,778)/BI)
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=> d l3 cit ab

1. 5,451,451, Sep. 19, 1995, Plastic based laminates comprising a fiber reinforced plastic lofted core and outer parallel sheets of thermoset resin impregnated cotton liner paper; Michael G. Minnick, 442/247; 428/300.7, 902, 903; 442/267, 391, 414 [IMAGE AVAILABLE]

US PAT NO: 5,451,451 [IMAGE AVAILABLE] L3: 1 of 1

ABSTRACT:
A light weight, high strength laminate having improved fire resistant characteristics and the method of making the same. A preferred embodiment includes a low density fiber reinforced thermoplastic resin core between two parallel sheets of high density fiber reinforced thermoset resin. Another embodiment includes a core of polymeric foam laminated between two parallel inner fiber reinforced thermoplastic resin layers each of which face an outer layer of fiber reinforced thermoplastic resin.

=> e cahill, john/in

E#	FILE	FREQUENCY	TERM
E1	USPAT	1	CAHILL, JAMES W/IN
E2	USPAT	7	CAHILL, JERRY E/IN
E3	USPAT	5 -->	CAHILL, JOHN/IN
E4	USPAT	3	CAHILL, JOHN A/IN
E5	USPAT	2	CAHILL, JOHN G/IN
E6	USPAT	2	CAHILL, JOHN M/IN
E7	USPAT	6	CAHILL, JOHN W/IN
E8	USPAT	1	CAHILL, JONATHAN P/IN
E9	USPAT	1	CAHILL, JONATHAN PROCTER/IN
E10	USPAT	1	CAHILL, JONATHAN W/IN
E11	USPAT	2	CAHILL, JOSEPH J/IN
E12	USPAT	1	CAHILL, JOSEPH JAMES/IN

=> s e3

L1 5 "CAHILL, JOHN"/IN

=> d l1 cit ab 1-5

1. 5,660,905, Aug. 26, 1997, Preform and process and apparatus for annealing biaxially oriented hollow shaped thermoplastic articles; Christopher Mero, et al., 428/36.92; 215/382; 428/36.9, 213, 542.8 [IMAGE AVAILABLE]

US PAT NO: 5,660,905 [IMAGE AVAILABLE] L1: 1 of 5

ABSTRACT:
A process and apparatus for annealing biaxially oriented articles is disclosed, particularly blow molded articles prepared from unique tapered preforms which are immediately annealed using warm fluid in a segmented mold. Portions of the segment mold, used to form the articles, are temperature controlled at various temperatures by passing warm water through conduits in the neck-shoulder portion and body portion of the mold segment and cold water through the bottom and shoulder portion of the mold to bring the temperature of the article wall to about 65.degree. C. to 85.degree. C. for PET bottles. The body wall temperature is preferably lowered to about 80.degree. C. while the necks-shoulder and bottom and shoulder portions are lowered to at least 70.degree. C. The annealing increases the articles structural strength, removes temperature and biaxial stress, reduces gas permeability, retains transparency and allows for multiple reuse of the article including hot washing thereof.

2. 5,560,943, Oct. 1, 1996, Apparatus for annealing and blowing a thermoplastic biaxially oriented container; Christopher Mero, et al., 425/526 [IMAGE AVAILABLE]

US PAT NO: 5,560,943 [IMAGE AVAILABLE] L1: 2 of 5

ABSTRACT:
An apparatus for annealing biaxially oriented articles is disclosed, particularly blow molded articles prepared from unique tapered preforms which are immediately annealed using warm fluid in a segmented mold. Portions of the segment mold, used to form the articles, are temperature controlled at various temperatures by passing warm water through conduits in the neck-shoulder portion and body portion of the mold segment and cold water through the bottom and shoulder portion of the mold to bring the temperature of the article wall to about 65.degree. C. to 85.degree. C. for PET bottles. The body wall temperature is preferably lowered to

about 80.degree. C. while the neck-shoulder and bottom and shoulder portions are lowered to at least 70.degree. C. The annealing increases the articles structural strength, removes temperature and biaxial stress, reduces gas permeability, retains transparency and allows for multiple reuse of the article including hot washing thereof.

3. 5,547,631, Aug. 20, 1996, Process for annealing biaxially oriented hollow shaped thermoplastic atricles; Christopher Mero, et al., 264/521, 903 [IMAGE AVAILABLE]

US PAT NO: 5,547,631 [IMAGE AVAILABLE] L1: 3 of 5

ABSTRACT:
A process and apparatus for annealing biaxially oriented articles is disclosed, particularly blow molded articles prepared from unique tapered preforms which are immediately annealed using warm fluid in a segmented mold. Portions of the segment mold, used to form the articles, are temperature controlled at various temperatures by passing warm water through conduits in the neck-shoulder portion and body portion of the mold segment and cold water through the bottom and shoulder portion of the mold to bring the temperature of the article wall to about 65.degree. C. to 85.degree. C. for PET bottles. The body wall temperature is preferably lowered to about 80.degree. C. while the neck-shoulder and bottom and shoulder portions are lowered to at least 70.degree. C. The annealing increases the articles structural strength, removes temperature and biaxial stress, reduces gas permeability, retains transparency and allows for multiple reuse of the article including hot washing thereof.

4. 5,505,612, Apr. 9, 1996, Appartus for blow mold annealing and heat treating thermoplastic articles; Christopher Mero, et al., 425/526, 530 [IMAGE AVAILABLE]

US PAT NO: 5,505,612 [IMAGE AVAILABLE] L1: 4 of 5

ABSTRACT:
An apparatus for annealing and heat treating biaxially oriented articles is disclosed, particularly blow molded articles prepared from preforms which are simultaneously annealed using warm fluid in a first segmented mold. The blown article is transferred to a second, larger mold where the article is pressurized against the mold to form the final container design and to heat treat at least a portion of the bottle wall to improve crystallinity and strength. Portions of the mold, used to form and anneal the articles, are temperature controlled at various temperatures by passing warm water through conduits in the neck-shoulder portion and body portion of the mold and cold water through the bottom and shoulder portion of the mold to bring the temperature of the article wall to about 65.degree. C. to 95.degree. C. for PET bottles. The second mold is up to 10% larger in volume and preferably employs resistance heating to heat treat the side wall to 110.degree. C. to 220.degree. C. and the neck-shoulder wall to less than the side wall but within the 110.degree. C. to 220.degree. C. temperature range for up to 30 seconds. The article is next cooled by injecting an evaporatable fluid like water which evaporates and immediately cools the article which is then removed from the mold. The heat treatment increases the article's structural strength, does not affect biaxial crystallinity reduces gas permeability, retains transparency and allows for multiple reuse of the article including hot washing thereof.

5. 5,411,698, May 2, 1995, Process and apparatus for blow mold annealing and subsequently heat treating thermoplastic articles; Christopher Mero, et al., 264/521, 528, 530, 903; 425/526 [IMAGE AVAILABLE]

US PAT NO: 5,411,698 [IMAGE AVAILABLE] L1: 5 of 5

ABSTRACT:
A process and apparatus for annealing and heat treating biaxially oriented articles is disclosed, particularly blow molded articles prepared from preforms which are simultaneously annealed using warm fluid in a first segmented mold. The blown article is transferred to a second, larger mold where the article is pressurized against the mold to form the final container design and to heat treat at least a portion of the bottle

wall to improve crystallinity and strength. Portions of the mold, used to form and anneal the articles, are temperature controlled at various temperatures by passing warm water through conduits in the neck-shoulder portion and body portion of the mold and cold water through the bottom and shoulder portion of the mold to bring the temperature of the article wall to about 65.degree. C. to 95.degree. C. for PET bottles. The second mold is up to 10% larger in volume and preferably employs resistance heating to heat treat the side wall to 110.degree. C. to 220.degree. C. and the neck-shoulder wall to less than the side wall but within the 110.degree. C. to 220.degree. C. temperature range for up to 30 seconds. The article is next cooled by injecting an evaporatable fluid like water which evaporates and immediately cools the article which is then removed from the mold. The heat treatment increases the articles structural strength, does not affect biaxial crystallinity reduces gas permeability, retains transparency and allows for multiple reuse of the article including hot washing thereof.

d 4082882 4088805 4418108 4425396 5053265

1. 4,082,882, Apr. 4, 1978, Fiberglass reinforced plywood structural sandwich with acrylic facing on one or both sides thereof; Hyman Weinstein, et al., 442/286; 156/285; 264/101, 257; 296/901; 428/483, 511, 537.1 [IMAGE AVAILABLE]

2. 4,088,805, May 9, 1978, Reinforced thermoplastic foam sheet; Donald E. Wiegand, 442/370; 156/285, 306.6, 308.4; 428/76, 139, 319.9, 910; 442/394 [IMAGE AVAILABLE]

3. 4,418,108, Nov. 29, 1983, Composite roofing panel; David C. K. Lin, 428/139; 156/78; 428/304.4, 306.6, 316.6; 442/370, 394 [IMAGE AVAILABLE]

4. 4,425,396, Jan. 10, 1984, Insulative panel; Richard E. Hartman, 428/220, 306.6, 309.9, 314.4, 316.6, 443; 442/221, 370 [IMAGE AVAILABLE]

5. 5,053,265, Oct. 1, 1991, Moisture-imprevious panel capable of delayed hydration; William Alexander, 428/182; 52/169.14; 405/38, 49; 428/4, 137, 448, 449, 452, 454, 484, 485, 486, 511, 514, 913; 442/255, 295, 381, 412 [IMAGE AVAILABLE]

=> d 4363848 4350730 3616020

1. 4,363,848, Dec. 14, 1982, Three layered foam-containing laminate suitable for use as an automobile headliner; Edward C. Le Duc, et al., 442/226; 296/214; 428/317.7, 318.6, 319.9 [IMAGE AVAILABLE]

2. 4,350,730, Sep. 21, 1982, Plastic laminate; Stephen J. Cyr, et al., 428/215, 319.7, 519, 520 [IMAGE AVAILABLE]

3. 3,616,020, Oct. 26, 1971, EXTRUSION COATING OF A HEAT FUSIBLE FOAM SHEET; Mark W. Whelan, et al., 427/209; 156/243, 244.27, 324 [IMAGE AVAILABLE]

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5451451 ✓
5098778
4088805 ✓
4425396 ✓
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Top Closest Patents:

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MAYA Search Report Summary for 982559

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Date Posted:	April 20, 1998
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Quantity:	50

E003 WORD FREQUENCY SEARCH REPORT

Top Referenced Classes (up to 50):

1.	428/319.3	Total=12	ORs=0	XRs=12
2.	428/319.7	Total=11	ORs=0	XRs=11
3.	428/316.6	Total=9	ORs=1	XRs=8
4.	428/317.1	Total=6	ORs=1	XRs=5
5.	428/318.4	Total=5	ORs=0	XRs=5
6.	428/71	Total=5	ORs=2	XRs=3

10 1 L2 AND L3 AND L4 AND L5

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1. 4,557,970, Dec. 10, 1985, Laminate structure with improved acoustical absorption; James S. Holtrop, et al., 428/316.6, 317.1, 318.4 [IMAGE AVAILABLE]

US PAT NO: 4,557,970 [IMAGE AVAILABLE] L10: 1 of 1

ABSTRACT:
A laminate structure with improved acoustical absorption is provided which has a first and a third layer of foamed thermoplastic material and a second layer, intermediate the first and third layers, which is a material having acoustical properties different from the properties of the material of the first and third layers. A portion of the surface area of each layer is adhesively bonded to the adjacent layer. A sheet of paper or fabric is adhesively bonded to at least the outer surfaces of the first and third layers.

=> d l8 cit ab 1-17

1. 5,846,637, Dec. 8, 1998, Coated xerographic photographic paper; Shadi L. Malhotra, et al., 428/195; 347/105, 112; 428/211, 423.1, 481, 511; 430/124, 126 [IMAGE AVAILABLE]

US PAT NO: 5,846,637 [IMAGE AVAILABLE] L8: 1 of 17

ABSTRACT:
A coated xerographic photographic paper comprised of (1) a cellulosic substrate; (2) a first antistatic coating layer in contact with one surface of the substrate; (3) a second toner receiving coating on the top of the antistatic layer, and comprised of a mixture of a binder polymer, a toner spreading agent, a lightfastness inducing agent, a biocide, and a filler; and (4) a third traction controlling coating in contact with the back side of the substrate comprised of a mixture of a polymer with a glass transition temperature of from between about -50.degree. C. to about 50.degree. C., an antistatic agent, a lightfastness agent, a biocide and a pigment. The traction promoting third coating is also capable of receiving images from a xerographic copier/printer. The cellulosic substrate is comprised of alkaline sized and acid sized blends of hardwood kraft and softwood kraft fibers, which blends contain from about 10 percent to about 90 percent by weight of softwood and from about 90 to about 10 percent by weight of hardwood. The sizing value of the cellulosic substrate varies between 200 seconds to 1,100 seconds, the porosity varies from 50 to 300 mil/minute, and the thickness varies between 50 microns to 250 microns.

2. 5,843,068, Dec. 1, 1998, Disposable diaper having elastic side panels; Martin A. Allen, et al., 604/385.2, 387, 392, 396 [IMAGE AVAILABLE]

US PAT NO: 5,843,068 [IMAGE AVAILABLE] L8: 2 of 17

ABSTRACT:
A form fitting diaper comprises a backsheet having a front section, a back section, and a crotch section, and has bonded thereto an absorbent layer. The diaper further comprises a pair of elastic side panels bonded between the front and back sections of the backsheet and define therewith a circumferentially continuous and elastic waist, and further defining leg openings. The side panels having substantially unidirectional elasticity whereby the panels are elastic in the circumferential

direction and substantially inelastic in the direction perpendicular thereto. The side panels being of composite construction comprising an elastomeric layer with a unidirectionally elastic nonwoven layer bonded thereto. The composite combines the barrier and strength properties of the elastomeric layer with the unidirectional elasticity and fabric-like properties of the nonwoven layer. The unidirectional elasticity of the composite is useful for putting on and taking off the diaper. The elastic nonwoven layer being formed by heat drawing substantially nonelastic meltblown or spunbond fibers.

3. 5,776,842, Jul. 7, 1998, Cellulosic web with a contaminant barrier or trap; Willard E. Wood, et al., 442/394 [IMAGE AVAILABLE]

US PAT NO: 5,776,842 [IMAGE AVAILABLE] L8: 3 of 17

ABSTRACT:
Nonwoven cellulosic fiber webs such as, for example, paperboards and corrugated paper boards are described containing a barrier layer that can act both as a barrier to the passage of contaminants and as a trap for contaminant materials that can arise in new materials or from the recycle of fiber in the manufacture of paperboard. The effective material which acts as a trap or barrier is a cyclodextrin compound, substantially free of an inclusion complex compound. The cyclodextrin barrier layer can be corrugated or sheet laminated with or on the cellulosic web. Alternatively, the cyclodextrin material can be included in a coating composition that is coated on the surface or both surfaces of the cellulosic web after web formation. Further, the cyclodextrin material can be included in a thermoplastic film that can be used as one layer in a bilayer or multilayer laminate containing a cellulosic web.

4. 5,763,128, Jun. 9, 1998, Simulated photographic-quality images on a substrate without curl; Shadi L. Malhotra, 430/97, 11, 124, 126 [IMAGE AVAILABLE]

US PAT NO: 5,763,128 [IMAGE AVAILABLE] L8: 4 of 17

ABSTRACT:
Disclosed is an apparatus and method for creating simulated photographic-quality prints, including: (a)providing a coated transparent substrate having a wrong reading toner image formed thereon; (b)providing one surface of a backing substrate with a first coating of a polymeric adhesive binder having a glass transition temperature less than 55.degree. C. an antistatic agent, a lightfastness inducing agent and an optional filler; (c)providing the one surface of the backing substrate with a second coating in contact with the first coating wherein the second coating includes a polymer having a melting point of greater than 50.degree. C.; and a hydroxy functional anticurl agent and a liquid crystalline material; (d)providing another coating on the backing substrate opposite the one surface which has a fragrant aroma, antistatic agent, fire retardant material, and abrasion resistant material; and(e)adhering the substrates to each other by the application of heat and pressure.

5. 5,747,394, May 5, 1998, Post-treatment of laminated nonwoven cellulosic fiber webs; Charles B. Hassenboehler, Jr., et al., 442/328; 428/114, 311.11, 311.51, 910; 442/400, 401, 409 [IMAGE AVAILABLE]

US PAT NO: 5,747,394 [IMAGE AVAILABLE] L8: 5 of 17

ABSTRACT:
Nonwoven webs consolidated and elastic transverse direction, laminates and methods of making same are disclosed.

6. 5,713,881, Feb. 3, 1998, Non-continuous absorbent composites comprising a porous macrostructure of absorbent gelling particles and a substrate; Ebrahim Rezai, et al., 604/368, 365, 372, 378, 382 [IMAGE AVAILABLE]

US PAT NO: 5,713,881 [IMAGE AVAILABLE] L8: 6 of 17

ABSTRACT:

A non-continuous absorbent composite having a plurality of interconnected strands separated by voids. The strands comprises a porous, absorbent macrostructure and a substrate. The porous macrostructure has interconnected absorbent gelling particles that are surface crosslinked with cationic, preferably polymeric, amino-epichlorohydrin adducts. Upon contacting liquids such as water or body exudates (e.g., urine), the absorbent composite can absorb the liquids without undesirable planer expansion, The composite is useful in absorbent articles such as diapers, adult incontinence pads, and sanitary napkins are disclosed.

7. 5,672,424, Sep. 30, 1997, Ink jet transparencies; Shadi L. Malhotra, et al., 428/325; 347/105; 428/195, 327, 328, 329, 330, 331, 412, 478.2, 480, 500, 520, 524, 532, 912 [IMAGE AVAILABLE]

US PAT NO: 5,672,424 [IMAGE AVAILABLE] L8: 7 of 17

ABSTRACT:
A transparency comprised of a supporting substrate, thereover a first coating layer comprised of an anionic layer that binds well with the substrate; and a second cationic layer situated on the top of the first anionic layer that binds with the anionic layer and comprised of cationic quaternary monomers and polymers thereof and a lightfastness inducing agent; and a third ink receiving layer situated on the top of the second cationic layer and comprised of block copolymers and graft polymers, a biocide and a filler; which transparency possesses a haze value of from about 0.5 to about 10 and a lightfastness value of from about 95 to about 98.

8. 5,599,366, Feb. 4, 1997, Post-treatment of laminated nonwoven cellulosic fiber webs; Charles B. Hassenboehler, Jr., et al., 55/486, 487, 524, 528, DIG.5, DIG.39 [IMAGE AVAILABLE]

US PAT NO: 5,599,366 [IMAGE AVAILABLE] L8: 8 of 17

ABSTRACT:
A method for post-treating a laminated precursor nonwoven web which includes layers of thermoplastic man-made fibers and at least one layer of cellulose-based staple natural fibers, including consolidating the web laterally and thereby reducing the maximum pore size measure of the web. The precursor web and the resultant consolidated nonwoven web are also disclosed, as is utilization of the product web in medical uses.

9. 5,536,264, Jul. 16, 1996, Absorbent composites comprising a porous macrostructure of absorbent gelling particles and a substrate; Kesyin Hsueh, et al., 604/368, 365, 372, 378, 382 [IMAGE AVAILABLE]

US PAT NO: 5,536,264 [IMAGE AVAILABLE] L8: 9 of 17

ABSTRACT:
An absorbent composite having a porous absorbent macrostructure and a substrate. The porous macrostructure has interconnected absorbent gelling particles that are surface crosslinked with cationic, preferably polymeric, amino-epichlorohydrin adducts. Upon contacting liquids such as water or body exudates (e.g., urine), the porous absorbent macrostructure can swell and imbibe the liquids. The composite is useful in absorbent articles such as diapers, adult incontinence pads, and sanitary napkins are disclosed.

10. 5,443,606, Aug. 22, 1995, Post-treatment of laminated nonwoven cellulosic fiber webs; Charles B. Hassenboehler, Jr., et al., 55/486, 487, 524, 528, DIG.5, DIG.39 [IMAGE AVAILABLE]

US PAT NO: 5,443,606 [IMAGE AVAILABLE] L8: 10 of 17

ABSTRACT:
A method for post-treating a laminated precursor nonwoven web which includes layers of thermoplastic man-made fibers and at least one layer of cellulose-based staple natural fibers, including consolidating the web longitudinally and thereby reducing the maximum pore size measure of the web. The precursor web and the resultant consolidated nonwoven web are also disclosed, as is utilization of the product web in medical uses.

11. 5,441,550, Aug. 15, 1995, Post-treatment of laminated nonwoven cellulosic fiber webs; Charles B. Hassenboehler, Jr., et al., 55/486, 487, 524, 528, DIG.5, DIG.39 [IMAGE AVAILABLE]

US PAT NO: 5,441,550 [IMAGE AVAILABLE] L8: 11 of 17

ABSTRACT:
A method for post-treating a laminated precursor nonwoven web which includes layers of thermoplastic man-made fibers and at least one layer of cellulose-based staple natural fibers, including consolidating the web laterally and thereby reducing the maximum pore size measure of the web. The precursor web and the resultant consolidated nonwoven web are also disclosed, as is utilization of the product web in medical uses.

12. 4,813,944, Mar. 21, 1989, Multipurpose disposable absorbent pad; Glen K. Haney, et al., 604/358; 5/484 [IMAGE AVAILABLE]

US PAT NO: 4,813,944 [IMAGE AVAILABLE] L8: 12 of 17

ABSTRACT:
A disposable multi-purpose absorbent pad has a top layer of adsorbent material, a second layer of absorbent material, and a third layer of liquid impermeable material, the layers being joined at the edges of the pad forming a peripheral seal. The underside of the third layer is coated with a foam material covering the area within the peripheral seal.

13. 4,681,577, Jul. 21, 1987, Disposable urinary and fecal waste containment product; Beth A. Stern, et al., 604/378, 368, 370, 379, 380, 385.1, 389, 390; D24/126 [IMAGE AVAILABLE]

US PAT NO: 4,681,577 [IMAGE AVAILABLE] L8: 13 of 17

ABSTRACT:
The invention provides a disposable urinary and fecal waste containment product suitable for active adults. The product has a high liquid impact capacity, high liquid retention, contains fecal waste without leakage and allows the skin of the wearer to remain dry. The product has a liquid-impermeable substantially flexible shell containing a superstructure associated with an absorbent medium and a rear portion with a superstructure of three-dimensional characteristics with sufficient friction to prevent movement of fecal matter laterally.

14. 4,382,108, May 3, 1983, Novel compositions and process; Woodrow Carroll, et al., 428/326; 156/62.2, 331.7; 264/122; 428/2, 327, 402, 407, 423.3, 425.1 [IMAGE AVAILABLE]

US PAT NO: 4,382,108 [IMAGE AVAILABLE] L8: 14 of 17

ABSTRACT:
Composite panels are disclosed which comprise outer layers derived from cellulosic and like material conventionally employed in particle boards and an inner layer which is comminuted scrap plastic material, the various layers and the particles in them being bonded together using an organic polyisocyanate binder. Optionally the binder contains an internal release agent. The composites, in addition to representing a valuable way in which to utilize scrap plastic, also possess improved properties compared with the corresponding panels which lack the inner core. In a particular embodiment the scrap plastic used is derived from junked automobiles.

15. 4,173,046, Nov. 6, 1979, Absorptive patient underpad; John P. Gallagher, 5/484, 487, 500; 604/370, 375, 378 [IMAGE AVAILABLE]

US PAT NO: 4,173,046 [IMAGE AVAILABLE] L8: 15 of 17

ABSTRACT:
An absorptive and protective patient underpad is characterized by its ability to absorb substantial volumes of liquid, while maintaining a relatively dry top surface and the underpad is further characterized by a

layer between a top cushioning layer and a lower absorbent layer which will permit liquid flow into the absorbent layer and reduce to a minimum the generation and release of offensive odors from the absorbent layer.

16. 4,048,361, Sep. 13, 1977, Composite material; Emery I. Valyi, 215/12.2, 370, 379; 220/62.11; 426/127, 133, 415; 428/36.6, 36.7, 212, 483, 507, 509, 510, 513, 514, 518, 520, 522 [IMAGE AVAILABLE]

US PAT NO: 4,048,361 [IMAGE AVAILABLE] L8: 16 of 17

ABSTRACT:
A materials composite having improved resistance to permeation by unwanted substances, especially gas permeation. The composite includes a first layer of a barrier having partial resistance to permeation and a second layer adhered to the first layer. The composite includes a uniformly dispersed getter material capable of absorbing unwanted substance permeating through the barrier.

17. 4,041,209, Aug. 9, 1977, Multiple wall packaging material containing sulfite compound; William R. Scholle, 428/500; 206/484; 426/124, 127, 131, 133, 323, 324, 415; 428/510, 518, 522, 537.5, 702, 913 [IMAGE AVAILABLE]

US PAT NO: 4,041,209 [IMAGE AVAILABLE] L8: 17 of 17

ABSTRACT:
A structural multiple ply wall for a product container has an inner container sheet ply having a composition providing low product permeability through the ply for a product disposed adjacent to a first face of the ply. A fluid coating consisting of an aqueous solution of a reducing sulfite salt is disposed adjacent to the second face of the inner sheet ply, the coating actively reacting with oxygen gas from the adjacent atmosphere. At least one sheet exterior ply has one face of one of the exterior ply disposed adjacent to the fluid coating. The exterior ply can have a composition providing low oxygen permeability through the sheet exterior ply. The inner sheet ply, the liquid coating, and the sheet exterior ply are contiguously integrally disposed together forming the structural multiple ply wall. The wall is formed into a product container providing at least the major proportion of the container wall area. A method of manufacturing the multiple ply wall is taught.

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L3          129 S FOAMED MATERIAL AND FIRST LAYER
L4        80901 S POLYSTYRENE OR POLYURETHANE AND FIRST LAYER AND ( FIBERB
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L5         9045 S (POLYETHYLENE OR POLYPROPYLENE) AND SECOND LAYER
L6           86 S CELLULOSIC MATERIAL AND THIRD LAYER
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L9            0 S L2 AND L8
L10           1 S L2 AND L3 AND L4 AND L5
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1. 5,556,926, Sep. 17, 1996, Concentrate for use in the melt fabrication of polyester; George E. Rotter, et al., 525/444, 437 [IMAGE AVAILABLE]

2. 5,536,793, Jul. 16, 1996, Concentrate for use in the melt fabrication of polyester; George E. Rotter, et al., 525/437; 524/174, 176; 525/444 [IMAGE AVAILABLE]

3. 5,507,640, Apr. 16, 1996, Apparatus and method useful in manufacture of two piece cups; Robin A. Gilmer, et al., 432/225; 34/104, 105, 218, 219; 432/230 [IMAGE AVAILABLE]

4. 5,462,794, Oct. 31, 1995, Foamed core-reclaim multi layer sheet having improved resistance to barrier film delamination; David C. Lindemann, et al., 428/317.1, 318.6, 319.3, 319.7, 903.3 [IMAGE AVAILABLE]

5. 5,446,111, Aug. 29, 1995, Increased throughput in melt fabrication and foaming of polyester; George E. Rotter, et al., 525/444; 264/239, 328.1, 331.11; 528/296, 298, 308, 308.6 [IMAGE AVAILABLE]

6. 5,354,402, Oct. 11, 1994, Method of producing a thermoplastic foam sheet; Melvin L. Luetkens, Jr., et al., 156/244.11, 94, 244.24, 244.27; 264/37.32; 428/35.4, 36.7, 304.4, 317.9, 319.7 [IMAGE AVAILABLE]

7. 5,340,846, Aug. 23, 1994, Increased throughput in melt fabrication and foaming of polyester; George E. Rotter, et al., 521/182; 264/54; 521/79, 81, 97, 138 [IMAGE AVAILABLE]

8. 5,288,764, Feb. 22, 1994, Increased throughput in foaming and other melt fabrication of polyester; George E. Rotter, et al., 521/81; 264/54; 521/92, 138 [IMAGE AVAILABLE]

9. 5,224,623, Jul. 6, 1993, Fast food container; John A. LaFleur, 220/669; 206/217; 220/674, 675 [IMAGE AVAILABLE]

10. 5,221,395, Jun. 22, 1993, Method for producing a foamed core-reclaim multi-layer sheet; Melvin L. Luetkens, Jr., et al., 156/244.11, 94, 244.24, 244.27; 264/37.32; 428/35.4, 36.7, 304.4, 317.9, 319.7 [IMAGE AVAILABLE]

11. 5,213,256, May 25, 1993, Container assembly having a removable insert/divider; Stephen J. Cyr, 229/120.32, 904 [IMAGE AVAILABLE]

12. 5,128,196, Jul. 7, 1992, Foamed core-reclaim multi-layer sheet and process for production thereof; Melvin L. Luetkens, Jr., et al., 428/213, 317.1, 318.6, 319.3, 319.7, 903.3 [IMAGE AVAILABLE]

13. 5,045,254, Sep. 3, 1991, Process for producing tubular film from thermoplastic molten material; Paul L. Peelman, et al., 264/48, 50, 209.2, 209.8, 564; 425/4C, 197, 380, 467, 817C [IMAGE AVAILABLE]

14. 4,931,237, Jun. 5, 1990, Extrusion die apparatus and process for producing tubular film from thermoplastic molten material; Paul L. Peelman, et al., 264/48, 146, 209.2, 209.8, 564; 425/4C, 197, 380, 467, 817C [IMAGE AVAILABLE]

15. 4,878,970, Nov. 7, 1989, Heating of a foam cup to increase stiffness; John C. Schubert, et al., 156/69, 83; 220/902; 229/400; 264/321; 428/913 [IMAGE AVAILABLE]

16. 4,579,275, Apr. 1, 1986, Containers; Paul L. Peelman, et al., 229/400; 220/902; 264/101, 321, 338; 425/388, 402, 436R, 817R [IMAGE AVAILABLE]

17. 4,547,412, Oct. 15, 1985, Heating foam container in unrestricted state to increase stiffness; Daniel J. Schneider, et al., 428/36.5; 156/83; 264/321; 428/318.6, 913 [IMAGE AVAILABLE]

18. 4,363,848, Dec. 14, 1982, Three layered foam-containing laminate suitable for use as an automobile headliner; Edward C. Le Duc, et al., 442/226; 296/214; 428/317.7, 318.6, 319.9 [IMAGE AVAILABLE]

19. 4,350,730, Sep. 21, 1982, Plastic laminate; Stephen J. Cyr, et al., 428/215, 319.7, 519, 520 [IMAGE AVAILABLE]

20. 4,256,797, Mar. 17, 1981, Contoured resilient vehicle trim panel; Richard W. Stamper, et al., 428/215; 264/321, 322; 296/214; 428/90, 218, 314.8, 318.6, 319.7 [IMAGE AVAILABLE]

21. 4,211,590, Jul. 8, 1980, Method of making perforated contoured trim panel; Raymond G. Steward, et al., 156/79, 245, 253; 264/46.5, 156, 321; 296/214; 428/31, 138, 314.4, 319.7, 319.9 [IMAGE AVAILABLE]

22. 3,957,940, May 18, 1976, Wrinkle free extrusion coating of heat fusible foam sheet; John C. Schubert, et al., 264/173.1; 156/196, 224, 244.11, 244.27, 324; 264/173.11, 321, 510, 553; 427/209; 428/218 [IMAGE AVAILABLE]

=> d 4578915 5451451 5098778

1. 4,578,915, Apr. 1, 1986, Exterior wall; Joseph W. Schneller, 52/309.12, 259, 446, 454, 612 [IMAGE AVAILABLE]

2. 5,451,451, Sep. 19, 1995, Plastic based laminates comprising a fiber reinforced plastic lofted core and outer parallel sheets of thermoset resin impregnated cotton liner paper; Michael G. Minnick, 442/247; 428/300.7, 902, 903; 442/267, 391, 414 [IMAGE AVAILABLE]

3. 5,098,778, Mar. 24, 1992, Plastic based laminates comprising outer fiber-reinforced thermoset sheets, lofted fiber-reinforced thermoplastic sheets and a foam core layer; Michael G. Minnick, 442/224; 428/304.4, 306.6, 307.3, 308.4, 316.6, 317.7, 317.9, 408, 902, 920, 921; 442/225, 373 [IMAGE AVAILABLE]